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EXAMINER

KING, JUSTIN

ART UNIT

PAPER NUMBER

2181

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/518,551

Applicant(s)

GNANASIVAM ET AL.

Examiner

Justin I. King

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following claim 4's limitations must be shown or the feature(s) canceled from the claim(s): "aborting the method for managing access when said response indicates failure to reserve and said first controller is subordinate to said second controller; otherwise, delaying and communicating again a reservation request for said logical I/O device when said response indicates failure to reserve and said first controller is dominant to said second controller".

No new matter should be entered. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation "an Input/output device" in claim 21's first limitation's line 2. There is antecedent basis for this limitation in the claim 21's preamble.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Judd et al. (U.S. Patent No. 5,768,623).

Referring to claim 21: Judd discloses an apparatus (figure 7) for managing access to an input/output device (figure 7, structures 92-97), a communications link (figure 7, structure 98) coupling first and second nodes (figure 7, structure 80-85) each having respective first and second bus controllers. Judd further discloses an input logic on said first controller receiving a request to reserve said input/output device, and communications logic communicating from said first controller to said second controller a reservation request for said input/output device for execution by said second controller (column 4, paragraph 3, lines 52-53). Hence, the claim 21 is anticipated by Judd.

Referring to claim 22: Judd discloses the logical input/output device (column 5, paragraph 1, SCSI standard).

Referring to claim 23: Judd discloses a bus (figure 7, structure 98, column 4, lines 52-54).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-3 and 5-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judd in view of Hammersley et al. (U.S. Patent No. 5,392,433).

Referring to claims 1-2: Judd discloses a first node and a second node, having respective first and second bus controllers, and a logical I/O device, and a bus (figure 7). Judd discloses receiving on said first controller a request to reserve said logical I/O device; and communicating by means of said bus from said first to said second controller a request for said logical I/O device for execution by said second controller, in response to said receiving (column 4, paragraph 3, lines 52-54).

Judd does not explicitly disclose the request is a reservation request. Hammersley teaches a reservation request on a shared resource (figures 5A1-2, 5B). Hence, it would have been obvious to one having ordinary skill in the computer art to adopt Hammersley's teaching to Judd because Hammersley enables one to reserve one particular shared resource for exclusive usage.

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Referring to claim 3: Judd discloses the determining whether said logical I/O device is already reserved within said second controller (column 11, lines 55-56), but Judd does not explicitly disclose the communicating a response, indicating failure to reserve said logical I/O device, to said first node when said logical I/O device is already reserved; and Judd does not disclose the reserving said logical I/O device for said first node within said second controller, and communicating to said first node a response indicating success in reserving said logical I/O device.

Hammersley teaches the failure response due to the unavailability and the confirmation on successful reservation (figures 5A1-2, 5B). Hence, it would have been obvious to one having ordinary skill in the computer art to adopt Hammersley's teaching to Judd because Hammersley enables one to acknowledge the reservation request's status.

Referring to claim 5: Judd discloses a multi-logical-device and third controller (figures 7-8).

Referring to claim 6: Claim 6 is rejected as the claims 3-4's arguments stated above.

Referring to claim 7: Claim 7 is rejected as the claim 1's argument stated above; furthermore, Judd discloses the firmware (column 5, paragraph 2), the firmware and its associated hardware are equivalent to the computer-readable medium for data storage and its associated computer program including instructions.

Referring to claim 8: Claim 8 is rejected as the claim 2's argument stated above.

Referring to claim 9: Claim 9 is rejected as the claim 3's argument stated above.

Referring to claim 10: Claim 10 is rejected as the claim 6's argument stated above.

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Referring to claim 11: Claim 11 is rejected as the claim 7's computer readable medium's argument stated above; furthermore, Judd discloses a computer system with an I/O device, a first and a second nodes having respective first and second bus controllers, and a bus coupling said first and second nodes and the I/O device by means of said first and second controllers (figure 7). Judd's firmware's associated hardware for executing the firmware instruction is equivalent to the claimed CPU.

Referring to claims 12 and 14: Judd discloses a first node and a second node, having respective first and second bus controllers, and a logical I/O device, and a bus (figure 7). Judd discloses receiving on said first controller a request to reserve said logical I/O device; and communicating by means of said bus from said first to said second controller a request for said logical I/O device for execution by said second controller, in response to said receiving (column 4, paragraph 3, lines 52-54).

Judd does not explicitly disclose the request is a release request. Hammersley teaches a release request on a shared resource (figure 6). Hence, it would have been obvious to one having ordinary skill in the computer art to adopt Hammersley's teaching to Judd because Hammersley enables one to free up one particular shared resource from exclusive usage.

Referring to claim 13: Hammersley teaches the reservation requests (figures 5A1-2, figure B).

Referring to claim 15: Judd discloses a multi-logical-device and third controller (figures 7-8).

Referring to claims 16-17: Claims 16-17 are rejected as the claim 12's argument stated above; furthermore, Judd discloses the firmware (column 5, paragraph 2), the firmware and its

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associated hardware are equivalent to the computer-readable medium for data storage and its associated computer program including instructions.

Referring to claim 18: Claim 18 is rejected as the claim 16's computer readable medium's argument stated above; furthermore, Judd discloses a computer system with an I/O device, a first and a second nodes having respective first and second bus controllers, and a bus coupling said first and second nodes and the I/O device by means of said first and second controllers (figure 7). Judd's firmware's associated hardware for executing the firmware instruction is equivalent to the claimed CPU.

Referring to claim 19: Claim 19 is rejected as the claim 7's rejection stated above.

Referring to claim 20: Claim 20 is rejected as the claim 16's rejection stated above.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Judd in view of Hammersley, and in further view of Barlow (U.S. Patent No. 4,096,569).

Judd discloses that a secondary controller aborts the access when the primary controller is still functioning (column 8, lines 43-67); such that Judd discloses the aborting access when said response indicates failure to reserve and said first controller is subordinate to said second controller. Judd does not disclose the delaying and retrying.

Barlow discloses that the master will retry upon receiving the failure signal (column 7, paragraph); such that Barlow discloses the delaying and the communicating again a reservation request for said logical I/O device when said response indicates failure to reserve and said first controller is dominant to said second controller. Therefore, it would have been obvious to one

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having ordinary skill in the computer art to adopt the teachings of Barlow to Judd and Hammersley because Barlow teaches one to handle the failure exceptions.

Response to Arguments

10. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4,941,083 to Gillett, Jr. et al.: Gillett teaches a method and apparatus for initiating interlock read transactions on a multiprocessor computer system.

U.S. Patent No. 5,060,144 to Sipple et al.: Sipple teaches a locking control with validity status indication for a multi-host processor system.

U.S. Patent No. 5,727,172 to Eifert et al.: Eifert discloses a method and apparatus for performing atomic accesses in a data processing system.

U.S. Patent No. 4,399,504 to Obermarck et al.: Obermarck discloses a method and means for the shared data resource with a resource lock manager.

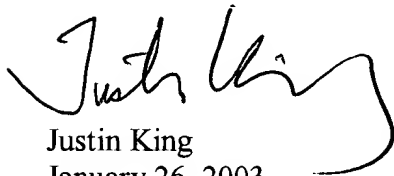
U.S. Patent No. 5,517,625 to Takahashi: Takahashi discloses a system bus control system for multiprocessor system.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin I. King whose telephone number is 703-305-4571. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-308-3110. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7239 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5631.


Justin King
January 26, 2003


GOPAL C. RAY
PRIMARY EXAMINER
GROUP 2800